Rheumatol Int (2006) 26: 828–836
DOI 10.1007/s00296-005-0086-z

ORIGINAL ARTICLE

T.N. Hyphantis · M. Bai · V. Siafaka · A.N. Georgiadis
P.V. Voulgari · V. Mavreas · A.A. Drosos

Psychological distress and personality traits in early rheumatoid arthritis: a preliminary survey

Received: 3 June 2005 / Accepted: 3 November 2005 / Published online: 9 December 2005
© Springer-Verlag 2005

Abstract *Objectives:* To investigate psychiatric manifestations, personality traits, and ego mechanisms of defense involved in early rheumatoid arthritis (RA). *Methods:* Twenty-two unselected early RA outpatients with disease duration less than 1 year participated in the study. The majority of participants were females (72.7%), married (81.8%), aged 51.0 ± 14.6 years. Thirty-four subjects matched for age, sex and educational level served as ''healthy'' controls. General Heath Questionnaire, Symptom Distress Checklist, Defense Style Questionnaire and Hostility and Direction of Hostility Questionnaire were used; disease activity was estimated by disease activity for 28-joint indices score. *Results:* Seven patients (31.8%) presented psychological distress scores indicative of possible psychiatric caseness, expressing obsessive-compulsive symptoms and depression, as compared to six (17.6%) of controls. Social dysfunction distress and somatization were prominent psychiatric manifestations in early RA group. Early RA patients tend to adopt a less adaptive defense style than controls. Although disease activity was not correlated to psychological distress, a significant association between disease activity and patients' defensive style was observed: as the disease is exacerbated, there was a shift from ''non-adaptive'' to ''immature image distorting or borderline'' defense style, suggesting a rather fragile underlying personality structure. *Conclusion:* Psychological distress is a relatively common experience in early RA. Social dysfunction, along with the less adaptive defense style, which under the stress of the disease exacerbation turns to ''borderline'', underlines the importance of a careful assessment and consultation in early RA patients in order to face the distress shortly after diagnosis and highlights potential risk factors for future adaptation to exacerbations of the disease.

Keywords Early rheumatoid arthritis · Psychological distress · Depression · Personality · Disease activity for 28-joint indices score

T.N. Hyphantis · M. Bai · V. Siafaka · V. Mavreas
Department of Psychiatry, Medical School, University of Ioannina, 45110 Ioannina, Greece

A.N. Georgiadis · P.V. Voulgari · A.A. Drosos (✉)
Department of Internal Medicine, Rheumatology Clinic, Medical School, University of Ioannina, 45110 Ioannina, Greece
E-mail: adrosos@cc.uoi.gr
Tel.: +30-26510-99755
Fax: +30-26510-97054

Introduction

Rheumatoid arthritis (RA) is a chronic, debilitating disease characterized by inflammation of joint tissues, persistent pain, functional disability, stiffness and fatigue [1, 2]. RA is one of the most widespread of the rheumatic diseases with a prevalence of 0.5–1.0% [3, 4]. It is more common amongst females with a sex ratio of 3:1 and usually manifests between the ages of 40 and 60 [5]. The precise cause of RA is undetermined and the individual prognosis is unpredictable. Moreover, RA follows an unknown course of exacerbations and remissions. These aspects of the disease can have a significant impact on the daily life of the patients, since they have to deal with a potentially uncontrollable long-term condition that may affect almost all aspects of their physical, psychological and social functioning [6, 7]. Pain, physical disability and loss of valued activities can lead to a lack of perceived control and create feelings of anxiety and depression [8].

Psychological distress in general, and especially depressive symptoms appear to be elevated in patients with RA. Although most patients seem to adjust well to apparent changes imposed by the disease and find an acceptable level of well being, a number of studies estimate that the prevalence of psychological distress in RA patients varies from 14 to 46% [9–19]. Clinical measures such as disease activity, pain and physical disability have been related to anxiety and depression, but the nature of these relationships still remains unclear [10, 19–22]. It should be noticed that most of these relationships

Table 1 Demographic and clinical characteristics of early RA patients and "Healthy" controls

Variables	Total or value		*P*
	Rheumatoid arthritis	"Healthy" controls	
Number of patients	22	34	
Female: Male	16:6	25:9	NS
Age (years) range	18–71	22–70	
Age (Mean ± SD)	51.0 ± 14.6	46.1 ± 12.4	NS
Age (median)	51.0	44.5	
Family status: married *n* (%)	18 (81.8)	24 (70.6)	
Educational level *n* (%)			
Basic lower education (sixth grade)	15 (68.2)	21 (61.7)	NS
High-school education (12th grade)	6 (27.3)	11 (32.5)	NS
University educated (college/university)	1 (4.5)	2 (5.9)	NS
Employment *n* (%)			
Currently working full-time	14 (63.6)	24 (70.6)	NS
Retired from paid employment	2 (9.1)	1 (2.9)	NS
Unemployed or householders	6 (27.3)	9 (26.5)	NS
Disease duration (months)			
Range (Mean ± SD)	7–12 (10.8 ± 1.3)		
IgM rheumatoid factor positive *n* (%)	13 (59.05)		
DAS-28 (Mean ± SD)	3.2–6.1 (4.8 ± 1.2)		

NS not significant

mainly concern patients with established and long-standing disease, while few studies are focused on early RA patients [1, 2].

Studies on personality structure of RA patients have shown that patients with RA tend to be self-sacrificing, masochistic, rigid, moralistic, self-conscious, perfectionist and with poor capacity to recognize and express emotions [23–25]. Furthermore, it has also been reported that these patients appear to be neurotic and over-controlled [17, 26–29]. On the contrary, other studies suggest that patients with RA do not have a special personality disorder or some specific psychological characteristics, as compared to patients with other medical conditions [30, 31]. Apparently, the concept of a personality disorder in RA is highly questionable [23].

According to the aforementioned findings, a few studies have focused on psychiatric manifestations in early RA patients with illness duration less than 1 year. Furthermore, as far as we know, there is not any study that systematically investigated the defense styles and ego mechanisms of defense that possibly contribute to or restrain adaptation to the disease. Therefore, we plan to investigate psychiatric manifestations, personality traits and ego mechanisms of defense possibly involved in the onset, course and prognosis of RA in Greek patients. The concept of defense mechanisms has been a clinically useful metaphor that can be used to explain certain intrapsychic processes. Defenses have the function of keeping anxiety within manageable limits [32] and are believed to be a relatively stable aspect of personality [35, 36]. The study of ego defenses provide a theoretical and empirical basis for studying the relations among defense mechanisms, diagnosis, level of maturity, and other ongoing psychological phenomena [32–36]. The present study has been designed for longitudinal detection, and we present preliminary results in a cohort of early RA patients with disease onset less than 1 year.

Methods

Participants

A consecutive unselected sample of 22 outpatients with early RA participated in the study. The sample included all newly diagnosed RA patients in the Rheumatology Department of the University Hospital of Ioannina, Greece, during a 1-year period. All patients had a diagnosis of RA according to the American College of Rheumatology criteria [37]. Thirty-four subjects randomly selected from the hospital's staff matched for age, sex and educational level, not manifesting at the time of investigation problems requiring medical or psychiatric intervention, or receiving any medication, served as "healthy" controls. All participants were able to read and write Greek and none had a history of psychotic illness, current alcohol and/or drug abuse or dementia. The demographic and clinical characteristics of the patients and controls are described in Table 1. All patients entering into the study had disease duration of less than 1 year, without prior use of disease-modifying antirheumatic drugs or steroids. Patients, after completing the psychometric questionnaires, were treated with disease-modifying antirheumatic drugs with or without steroids and were followed up at predefined times according to a standardized protocol. To assess clinical and self-report data at the beginning of the study and at

follow-up periods, we are going to collect data on psychological distress, personality traits, clinical indices, disease activity and functional disability every year for a 5-year follow-up period.

Procedure and measures

All the procedures followed were in accordance with the ethical standards on human experimentation (World Medical Association Helsinki Declaration) and of the local hospital's responsible committee (No 20/14.02.2004). After complete description of the study to the subjects, all patients agreed to participate in the study and an informed consent was obtained. Clinical and self-report data were assessed during their second visit. Along with a request for demographic information, the following four self-report instruments were used:

The General Health Questionnaire-28 (GHQ-28) [38], a screening instrument, which estimates the likelihood of subjects being assessed as psychiatric cases at interview. The GHQ-28 consists of 28 items belonging to four clusters: (a) somatic symptoms, (b) anxiety and insomnia, (c) social dysfunction and (d) depressive feeling. As the total GHQ-28 score exceeds the recommended cut-off point, the probability of becoming a psychiatric case increases. GHQ-28 has been widely used in RA patients and studies have shown that GHQ-28 may be used as a screening instrument as well as to assess the impact of illness on RA sufferers [39, 40]. GHQ-28 has been standardized for the Greeks and the best cut-off point of the Greek Version was 4, as found by receiver-operating characteristics analysis [41]. Thus, in our sample, a score ≥5 was regarded as a predictor of the likelihood that someone would be diagnosed as suffering from a stress-related psychiatric disorder.

The Symptom Distress Checklist-90-R (SCL-90-R), a 90-item multidimensional self-report symptom inventory designed to measure psychological symptom patterns in psychiatric and medical patients [42]. It contains nine dimensions of psychiatric symptomatology: somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. The utility of SCL-90-R as a psychological screening instrument in RA patients has been well documented [43], and it has been standardized in Greece [44].

The Hostility and Direction of Hostility Questionnaire (HDHQ) [45], an attitudinal measure for a wide range of manifestations of hostility as a personality trait that reflects the subject's reaction to frustrating occurrences. HDHQ has been used in Greek normal samples [46] and in psychiatric or somatic patients [47].

The Defense Style Questionnaire (DSQ), a rating scale that is designed to estimate behavior suggestive of 25 psychodynamic (in origin) ego mechanisms of defense and four defense styles, namely "maladaptive action", "image distorting", "self-sacrificing" and "adaptive" styles [32, 33]. DSQ was translated into Greek after Dr. Bond's permission and its features in Greek samples are now under investigation by our research team. DSQ has been used in Greek medical patients [48, 49], and the standardization results so far indicate that the Greek version of DSQ shares almost the same properties as the original [49].

Disease activity

Disease activity was estimated by disease activity for 28-joint indices score (DAS-28) [50].

Statistical analysis

The statistical analysis was carried out using SPSS 10.0 (Statistical package for the social sciences, SPSS Inc., Chicago, IL, USA) for Windows. For the ordinal variables, the non-parametric rank-order correlation coefficient Kendall's tau-b was used. The case for using this correlation coefficient with psychometric data has been argued by Priest [47, 51]. Briefly, Kendall's tau-b is a coefficient of association that makes no assumptions about the normality of the underlying distribution of the data, especially when the sample size is small. It is also appropriate for the ordinal level of measurement, gives coefficients of rank-ordered correlations and a level of statistical significance, and allows a partial correlation coefficient to be calculated if necessary [47]. Chi-square analyses were carried out for categorical data (e.g. the Defense styles). Subsequently, a multiple logistic regression analysis was performed to determine the study variables that best differentiate the RA patients from controls. Finally, a multiple regression analysis was carried out for the RA group to determine factors that could predict disease activity. A stepwise procedure was used to arrive at the final model.

Results

Psychological distress

Seven out of 22 patients with early RA and six out of 34 controls presented scores above the cut-off point suggested by Garyfallos et al. [41] for detection of psychiatric cases among Greeks using GHQ-28. Thus, in our sample, 31.8% of RA patients presented scores above this point, in comparison with 17.6% of controls ($\chi^2 = 1.66$, $df = 1$, $P < 0.1$). The difference between patients and controls did not reach statistical significance, but show a tendency of a rather high percentage of possible psychiatric "caseness" in early RA patients. Kendall's tau-b correlation analyses of psychopathology clusters revealed that RA patients presented higher scores on SCL-90-R somatization ($P < 0.018$), depression ($P < 0.048$) and sleep restlessness ($P < 0.034$) subscales and on GHQ-28 social dysfunction subscale

Table 2 Psychiatric variables associated with early RA

Psychiatric variables	"Healthy" controls ($N=34$) (Mean ± SD)	RA ($N=22$) (Mean ± SD)	Kendall's tau-b	P
Hopkins SCL-90-R				
Somatization	0.8 ± 0.6	1.3 ± 0.9	0.269	0.018
Obsessiveness-compulsiveness	0.9 ± 0.5	1.2 ± 0.6	0.168	NS
Interpersonal sensitivity	1.0 ± 0.5	1.2 ± 0.7	0.096	NS
Depression	0.9 ± 0.6	1.2 ± 0.7	0.195	0.048
Anxiety	0.6 ± 0.7	0.7 ± 0.6	0.088	NS
Hostility	0.5 ± 0.5	0.7 ± 0.7	0.060	NS
Phobic anxiety	0.4 ± 0.3	0.5 ± 0.5	0.089	NS
Paranoid ideation	1.0 ± 0.7	1.2 ± 0.8	0.146	NS
Psychoticism	0.4 ± 0.3	0.5 ± 0.5	0.038	NS
Sleep restless	0.8 ± 0.9	1.5 ± 1.3	0.265	0.034
Thoughts of death	0.4 ± 0.9	0.6 ± 1.0	0.154	NS
Guilt	1.0 ± 1.1	1.0 ± 1.2	0.031	NS
General Distress Index	0.8 ± 0.4	1.0 ± 0.4	0.208	0.050
GHQ				
Physical symptoms	10.9 ± 4.9	12.1 ± 4.2	0.106	NS
Anxiety and insomnia	11.6 ± 5.1	12.3 ± 3.4	0.056	NS
Social dysfunction	11.7 ± 3.8	14.1 ± 3.7	0.306	0.010
Depressive feelings	7.6 ± 3.0	7.9 ± 2.1	0.040	NS
HDHQ				
Acting out hostility	3.9 ± 1.5	3.7 ± 1.9	−0.071	NS
Criticism of others	5.5 ± 1.9	6.0 ± 2.1	0.118	NS
Delusional hostility	2.3 ± 1.6	3.4 ± 2.1	0.226	0.047
Self criticism	3.7 ± 1.8	4.1 ± 1.8	0.138	NS
Guilt	2.1 ± 1.5	2.0 ± 1.2	0.015	NS
Total hostility	17.5 ± 6.0	19.3 ± 6.1	0.123	NS
Direction of hostility	−2.2 ± 4.3	−2.95 ± 5	−0.002	NS

NS not significant

($P<0.01$), compared to "healthy" controls (Table 2). Multivariate logistic regression analysis revealed that "somatization symptoms" ($P<0.01$) and "social dysfunction distress" ($P<0.01$) were the significant predictors of membership in RA group (Table 3). Kendall's correlation analysis within RA patients group revealed that patients with "possible mental disorder" presented higher scores in SCL-90-R subscales of depression (1.8 ± 0.7 vs. 0.95 ± 0.5, respectively, $P<0.005$), obsessiveness-compulsiveness (1.6 ± 0.75 vs. 1.0 ± 0.5, respectively, $P<0.05$) and interpersonal sensitivity (1.6 ± 0.9 vs. 1.0 ± 0.4, respectively, $P<0.05$) as compared to RA patients "without mental disorder" (Fig. 1).

Personality traits

Defense styles used by individual patients are presented in Table 4. If a subject's score for each defense style was 0.5 SD above the mean on a particular factor, we consider that this subject used that corresponding defense style, because a cut-off point of 0.5 SD has been considered to provide the best discrimination here [32]. Table 4 shows that only five RA patients (22.7%) tended to use an adaptive defense style, in comparison with 19 controls (55.9%, $\chi^2=5.99$, $df=1$, $P<0.01$). In addition, RA patients presented higher scores on HDHQ delusional hostility scale than the controls ($P<0.047$) (Table 2).

Table 3 Personality and psychopathology variables associated with early RA[a]

Variables	Univariate logistic analysis		Multivariate logistic analysis	
	Odds ratio (95% CIs[b])	P	Odds ratio (95% CIs)	P
SCL-90-R depression	1.858 (0.723–4.776)	0.05		
SCL-90-R somatization	2.480 (1.125–5.466)	0.024	6.452 (1.429–29.125)	0.015
DSQ adaptive style	0.747 (0.682–1.006)	0.05		
GHQ-28 social dysfunction	1.241 (0.997–1.547)	0.05	1.651 (1.122–2.430)	0.011

[a]Univariate and multivariate logistic regression analyses with the disease as dependent variable (RA versus "healthy" controls) and the psychopathology and hostility scales as well as defensive styles as independent variables. The predictive values were calculated based on the probability of being RA and the cut-off value between RA and controls was 0.500. Only statistically significant results are shown. Multivariate regression equation correctly classified 85.5% of the cases, with a Cox and Snell $R^2=0.366$

[b]CIs Confidence Intervals

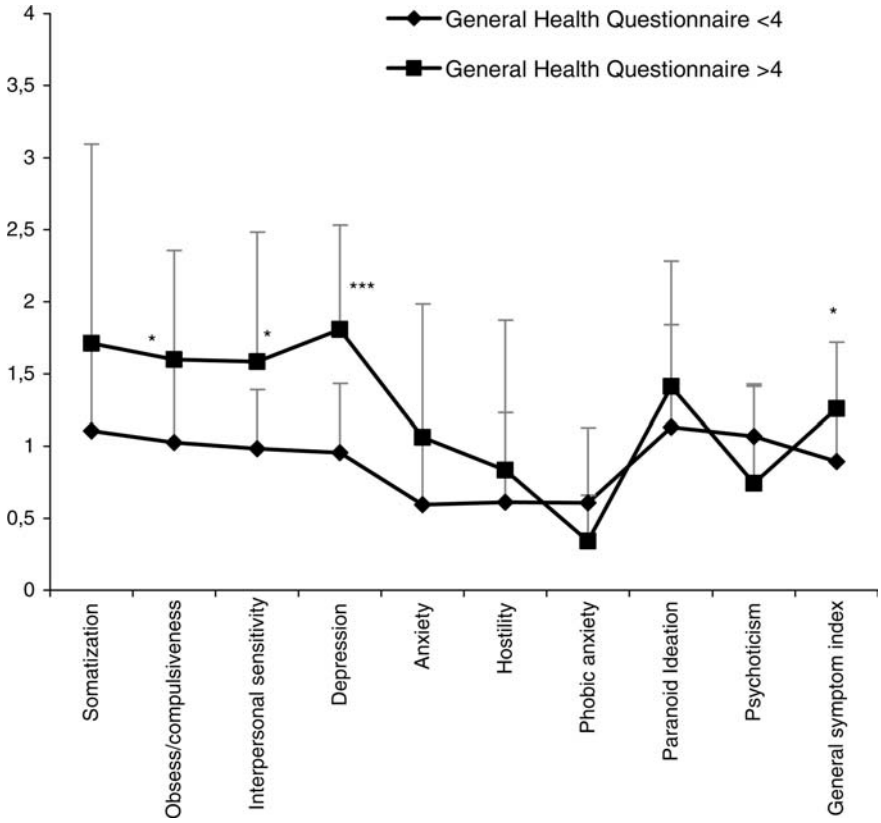

Fig. 1 Symptoms distress check-list sub-scales (Mean ± SD) in early RA patients with General Health Questionnaire values of ≥5 or ≤ 4 ($^{*}P < 0.05$; $^{***}P < 0.001$, Kendall's tau-b)

Table 4 Defense styles used by early RA patients[a]

Defense styles	"Healthy" controls ($N = 34$) *n* (%)	Early RA ($N = 22$) *n* (%)
Maladaptive action	14 (41.2)	8 (36.4)
Image distorting	11 (32.4)	7 (31.8)
Self-sacrificing	15 (44.1)	7 (31.8)
Adaptive	19 (55.9)	5 (22.7)[b]

[a]Because some subjects reported testing multiple defense styles, the sum of percentages in any row may exceed 100

[b]$P < 0.01$, chi-square test

Clinical indices, psychological distress and personality

Table 5 shows that initial levels of psychological distress, hostility, anxiety or depression were not significantly correlated to disease activity, as measured by DAS-28. On the contrary, personality factors such as "maladaptive action" and "image distorting" defense styles were found to be significantly correlated to DAS-28. Multiple regression analysis with the "disease activity" as dependent variable and all background, psychopathology and personality variables as independent variables revealed that educational level and a specific personality characteristic, DSQ's "image distorting" defensive style, were the major predictors of DAS-28 (Table 5). These results indicate that as the disease is exacerbated, the patients tend to adopt a specific immature defense style, the "image distorting" style. This style, along with educational level, accounted for 28.7% of the variance in disease activity in this multiple regression analysis.

Discussion

Preliminary findings on this cohort of early RA patients have shown that psychological distress is a relatively common experience in early RA, expressed mainly with somatization, depression and social dysfunction. In addition, RA patients in our sample tended to adopt a less mature "coping with stress" ability. Disease activity was not correlated to psychological distress, but there was a strong association between disease activity and personality traits: when the disease is exacerbated, personality traits resemble the characteristics of a borderline personality disorder.

In particular, a higher proportion of early RA patients (31.8%) meet "caseness" criteria for psychiatric morbidity, as compared to controls (17.6%). Psychiatric symptomatology in RA patients is depicted with "depressive" or "obsessive-compulsive" symptoms, whereas somatization symptoms and social dysfunction

Table 5 Factors associated with disease activity for 28-joint indices score in patients with early RA

Variables	Univariate analyses		Multiple regression[a]	
	Kendall's tau-b	*P*	Beta	*P*
Age	−0.053	NS	−0.246	NS
Educational level	−0.480	0.003	−0.963	0.006
Total hostility	−0.296	NS	−0.186	NS
DSQ - Maladaptive Action	0.394	0.05	0.170	NS
DSQ - Image Distorting Style	0.472	0.02	0.748	0.039
DSQ - Self Sacrificing Style	−0.103	NS	−0.421	NS
DSQ - Adaptive Style	0.199	NS	0.283	NS
GHQ-28 (Total score)	−0.242	NS	−0.127	NS
SCL-90-R General Symptom Distress Index	−0.216	NS	−0.223	NS

[a]Multiple regression analysis with disease activity as dependent variable for 28-joint indices score and independent variables the major demographic variables, the Defense Style Questionnaire Defensive Styles, the General Health Questionnaire as well as SCL-90-R indices of psychological distress. $R^2 = 0.792$, Adjusted $R^2 = 0.287$
NS not significant

due to psychological distress were prominent in RA group as compared to controls.

The research so far indicates that depressed mood seems to be a relatively common experience in early RA [2]. Data focused on RA patients with disease duration less than 1 year reported high levels of anxiety and depression, with a prevalence ranging from 18 to 21% and 5.7 to 20%, respectively [16, 52, 53]. In keeping with our findings, Parker et al. [43] reported that "somatization", "obsessive-compulsive" symptoms and "depression" were the highest scales on SCL-90-R in their study group of RA patients. Concerning early RA patients who were diagnosed within the last 2 years, the range of possible psychiatric cases varied from 13.3 to 33% [2, 11], expressed usually as neurotic depression [14]. Thus, although a number of studies have shown that in southern Europe RA seems to be milder than in northern Europe in various areas of their clinical severity and appearance [5, 54–56], the results of the present study provide preliminary evidence that Greek early RA patients presented with at least the same, if not the highest, "psychological distress indices" as the rest of the worldwide samples. These results, however, must be interpreted with caution, since larger sample sizes may be necessary in order to detect accurate psychological distress indices. In addition, it should be noted that psychometric tests, despite their validity, reliability and usefulness, do not have the diagnostic strength to replace a formal psychiatric examination [47]. Based on our findings and the results of the aforementioned studies, it could be suggested that the psychological distress profile of early RA patients is characterized by depression, obssessiveness-compulsiveness, somatization symptoms and social dysfunction distress.

According to our results, disease activity was not correlated with initial levels of psychological distress, anxiety or depression. Literature so far on the association between disease activity and psychiatric manifestations remains controversial. In patients with longstanding disease, clinical variables, such as disease activity, seem to be able to explain a significant amount of the variance in current depression [10, 21, 52]. In addition, some authors have postulated that pain and disability even in early RA were strongly related with symptoms of anxiety and depression [1, 16], while a decrease in psychological distress after 1 year could be predicted by an initially less severe inflammatory activity [16].

On the other hand, other researchers hold the view that there is no significant relationship between psychiatric symptoms and measures of disease activity either in cross-sectional or longitudinal studies [57]. Even in longstanding RA, some studies reported that there were no significant correlations between current depression and measures of disease activity [9, 58, 59]. Moreover, in line with the results of our study, Abdel-Nasser et al. [15] reported that none of the disease activity variables tested was significantly correlated with SCL-90-R depressive scores. It seems that, although pain and disability definitely contribute to psychological distress, it is unclear whether disease activity is directly correlated with anxiety and/or depression. The results of the present study suggest that disease activity and psychopathology at the first year of RA are independent entities, and, as Evers et al. [7] have proposed, whether individuals become more depressed or anxious in the long run is determined by relatively general and stable vulnerability factors, than RA itself.

The results of the present study on patients' personality organization indicated that RA patients tend to adopt a less mature and less adaptive defensive profile than the control group. The main components of "adaptive style" are "suppression", "humor", and "sublimation" defense mechanisms. Suppression allows an anxiety-producing conflict to be put out of awareness until the individual is ready to deal with this issue. Humor reflects a capacity to accept a conflictual situation while taking the edge off its painful aspects and sublimation uses the anxiety-provoking impulse in the service of creative response. All three defenses are associated with a constructive type of mastery of the conflict and with good coping [32]. According to the aforementioned concept, a great proportion of our RA patients lack mastering the inner and outer conflicts with such a

constructive and mature manner. Studies on the personality structure of RA patients and its relationship with the course of the disease are rather restricted. Psychodynamic studies on RA patients from early sixties regard the concept of a personality disorder in RA as highly questionable, although RA patients appeared to be neurotic, depressed, anxious, masochistic and overcontrolled [23].

Interestingly, as the disease is exacerbated, RA patients tend to adopt even more immature defenses. Thus, in our sample, patients in the more active and exhausting phase of the disease exhibit characteristics of an ''image distorting'' defense style. The main components of this style are the ego defenses of ''splitting'', ''omnipotence with devaluation'' and ''primitive idealization''. The essence of this style is that the patient ''split'' the image of self and other into good and bad, strong and weak, so he/she perceives others as ''all good'', omnipotent and strong or ''all bad'', devaluated and weak. Although in situations of stress these defenses could be invoked for adaptation [60], i.e. to trust in the omnipotence of the physician, this style is mostly associated with borderline personality disorder [61], a disorder characterized by extraordinarily unstable effect, mood, behavior and self-image.

It is generally argued that the least mature people have behavior problems, and especially those in borderline group have a problem in realistically viewing themselves and others, resulting in relationship problems [32]. According to our results, social dysfunction, which could be related to specific borderline features, was prominent in RA patients as compared to ''healthy'' controls. In accordance with this view, Marcenaro et al. [17] described a high prevalence of both obsessive-compulsive and borderline personality disorders among RA patients. However, this study refers to a long-standing disease and it does not report any relation between disease activity and personality traits. Although present data must prevent us from generalizations, especially in the case of the study of unconscious personality traits such as defense mechanisms, facets that are difficult to investigate using self-report measures alone [32–34], evidence suggests that DSQ provides a valid and replicated method for an estimation of the role of defense styles in personality and psychopathology formation [35, 36].

Our results provide some preliminary evidence that there are borderline personality traits possibly underlying the superficially ''good enough'' obsessive personality of RA patients. Under the stress of the disease exacerbation, they seem to be disorganized, indicating a rather specific structural deficit, failing to integrate the positive and negative qualities of the self and others into cohesive images. Clinicians should be alert to the aforementioned personality profile, which usually warrants specific therapeutic attitude. Attention, understanding and, in selected cases, intervention in the patients' inner psychological structure could help the management of these immature coping skills and subsequently could offer an important help in assisting the patient to adjust to the aversive symptoms and to improve the patient's compliance to treatment. As Evers et al. [7] has pointed out, besides medical treatment, psychological adjustment of patients may be optimized by support-enhancing health-care facilities in the first year after diagnosis.

In conclusion, the results of the present study suggest that early RA patients exhibit rather high indices of psychiatric manifestations, especially depression and social dysfunction psychological distress, which were not related to disease activity. In addition, borderline personality traits are possibly underlying the personality of RA patients. These results underline the importance of a careful assessment and consultation in recently diagnosed RA patients, in order to face the distress shortly after diagnosis, and highlight and/or restrain risk factors for future adaptation to exacerbations of the disease. A weakness of this study is the small number of patients in each group, which could result in a lower power, or ability to detect, differences in the groups. Further studies are needed in order to confirm the impact of the disease activity upon psychological distress. However, future results of the present ongoing longitudinal study could shed more light on the bi-directional association among the disease activity and psychiatric manifestations, personality traits and ego mechanisms of defense.

Acknowledgements This study was partially supported by grants from the Hellenic Society of Rheumatology.

References

1. Smedstad LM, Vaglum P, Moum T, Kvien TK (1997) The relationship between psychological distress and traditional clinical variables: a 2 year prospective study of 216 patients with early rheumatoid arthritis. Br J Rheumatol 36:1304–1311
2. Sharpe L, Sensky T, Allard S (2001) The course of depression in recent onset rheumatoid arthritis: the predictive role of disability, illness perceptions, pain and coping. J Psychosom Res 51:713–719
3. Drosos AA, Alamanos I, Voulgari PV, Psychos DN, Katsaraki A, Papadopoulos I, Dimou G, Siozos C (1997) Epidemiology of adult rheumatoid arthritis in northwest Greece 1987–1995. J Rheumatolol 24:2129–2133
4. Uhlig T, Kvien TK (2005) Is rheumatoid arthritis disappearing? Ann Rheum Dis 64:7–10
5. Drosos AA, Lanchbury JS, Panayi GS, Moutsopoulos HM (1992) Rheumatoid arthritis in Greek and British patients. A comparative clinical, radiologic, and serologic study. Arthritis Rheum 35:745–748
6. Eberhardt K, Larsson BM, Nived K (1993) Early rheumatoid arthritis-some social, economical, and psychological aspects. Scand J Rheumatol 22:119–123
7. Evers AW, Kraaimaat FW, Geenen R, Jacobs JW, Bijlsma JW (2002) Longterm predictors of anxiety and depression mood in early rheumatoid arthritis: a 3 year 5 year followup. J Rheumatol 29:2327–2336
8. Katz PP, Yelin EH (2001) Activity loss and the onset of depressive symptoms: do some activities matter more than others? Arthritis Rheum 44:1194–1202
9. Hawley DJ, Wolfe F (1993) Depression is not more common in rheumatoid arthritis: a 10-year longitudinal study of 6,153 patients with rheumatic disease. J Rheumatol 20:2025–2031

10. Katz PP, Yelin EH (1993) Prevalence and correlates of depressive symptoms among persons with rheumatoid arthritis. J Rheumatol 20:790–796
11. Conway SC, Creed FH, Symmons DP (1994) Life events and the onset of rheumatoid arthritis. J Psychosom Res 38:837–847
12. DeVellis BM (1995) The psychological impact of arthritis: prevalence of depression. Arthritis Care Res 8:284–289
13. Parker JC, Wright GE (1995) The implications of depression for pain and disability in rheumatoid arthritis. Arthritis Care Res 8:279–283
14. Smedstad LM, Moum T, Vaglum P, Kvien TK (1996) The impact of early rheumatoid arthritis on psychological distress. A comparison between 238 patients with RA and 116 matched controls. Scand J Rheumatol 25:377–382
15. Abdel-Nasser AM, Abd El-Azim S, Taal E, El-Badawy S, Rasker J, Valkenburg HA (1998) Depression and depressive symptoms in rheumatoid arthritis patients: an analysis of their occurrence and determinants. Br J Rheumatol 37:391–397
16. Evers AW, Kraaimaat FW, Geenen R, Bijlsma JW (1997) Determinants of psychological distress and its course in the first year after diagnosis in rheumatoid arthritis patients. J Behav Med 20:489–504
17. Marcenaro M, Prete C, Badini A, Sull A, Magi E, Cutolo M (1999) Rheumatoid arthritis, personality, stress response style, and coping with illness. A preliminary survey. Ann NY Acad Sci 876:419–425
18. Pincus T (2003) Psychological factors and rheumatoid arthritis. Int J Adv Rheumatol 1:58–63
19. Dickens C, McGowan L, Clark-Carter D, Creed F (2002) Depression in rheumatoid arthritis: a systematic review of the literature with meta-analysis. Psychosom Med 64:52–60
20. Newman SP, Fitzpatrick R, Lamb R, Shipley M (1989) The origins of depressed mood in rheumatoid arthritis. J Rheumatol 16:740–744
21. Wolfe F, Hawley DJ (1993) The relationship between clinical activity and depression in rheumatoid arthritis. J Rheumatol 20:2032–2037
22. Covic T, Adamson BJ, Spencer D, Howe G (2003) A biopsychosocial model of pain and depression in rheumatoid arthritis: a 12-month longitudinal study. Rheumatology (Oxford) 42:1287–1294
23. Moos RH, Solomon GF (1964) Minnesota multiphasic personality inventory response patterns in patients with rheumatoid arthritis. J Psychosom Res 26:17–28
24. Lumley MA, Stettner L, Wehmer F (1996) How are alexithymia and physical illness linked? A review and critique of pathways. J Psychosom Res 41:505–518
25. Brady TJ (1998) Integration of stress research in rheumatoid arthritis: from Alexander to Zautra and back again. Arthritis Care Res 11:77–79
26. Gardiner BM (1980) Psychological aspects of rheumatoid arthritis. Psychol Med 10:159–163
27. Vollhardt BR, Ackerman SH, Schindledecker RD (1986) Verbal expression of affect in rheumatoid arthritis patients. A blind, controlled test for alexithymia. Acta Psychiatr Scand 74:73–79
28. Radanov BP, Schwarz HA, Frost SA, Augustiny KF (1997) Relationship between self-rated functional status and psychosocial stress in patients suffering from rheumatoid arthritis. Psychother Psychosom 66:252–257
29. Persson LO, Sahlberg D (2002) The influence of negative illness cognitions and neuroticism on subjective symptoms and mood in rheumatoid arthritis. Ann Rheum Dis 61:1000–1006
30. Stewart MW, Knight RG, Palmer DG, Highton J (1994) Differential relationships between stress and disease activity for immunologically distinct subgroups of people with rheumatoid arthritis. J Abnorm Psychol 103:251–258
31. Wolfe F (1999) Psychological distress and rheumatic disease. Scand J Rheumatol 28:131–136
32. Bond M (1992) An empirical study of defense styles: the Defense Style Questionnaire. In: Vaillant GE (ed) Ego mechanisms of defense: a guide for clinicians and researchers. American Psychiatric Press, Washington DC
33. Bond M, Gardner ST, Christian J, Sigal JJ (1983) Empirical study of self-rated defense styles. Arch Gen Psychiatry 40:333–338
34. Bond MP, Vaillant JS (1986) An empirical study of the relationship between diagnosis and defense style. Arch Gen Psychiatry 43:285–288
35. Vaillant GE, Bond M, Vaillant CO (1986) An empirically validated hierarchy of defense mechanisms. Arch Gen Psychiatry 43:786–794
36. Andrews G, Pollock C, Stewart G (1989) The determination of defense style by questionnaire. Arch Gen Psychiatry 46:455–460
37. Arnett FC, Edworthy SM, Bloch DA, McShane DJ, Fries JF, Cooper NS, et al (1988) The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. Arthritis Rheum 31:315–324
38. Goldberg DP, Hillier VF (1979) A scaled version of the General Health Questionnaire. Psychol Med 9:139–145
39. Chandarana PC, Eals M, Steingart AB, Bellamy N, Allen S (1987) The detection of psychiatric morbidity and associated factors in patients with rheumatoid arthritis. Can J Psychiatry 32:356–361
40. Jenkinson C, Fitzpatrick R (1990) Measurement of health status in patients with chronic illness: comparison of the Nottingham health profile and the general health questionnaire. Fam Pract 7:121–124
41. Garyfallos G, Karastergiou A, Adamopoulou A, Moutzoukis C, Alagiozidou E, Mala D, Garyfallos A (1991) Greek version of the General Health Questionnaire: accuracy of translation and validity. Acta Psychiatr Scand 84:371–378
42. Derogatis LR (1994) SCL-90-R: administration, scoring, and procedure manual, 3rd edn. National Computer Systems, MN
43. Parker JC, Buckelew SP, Smarr KL, Buescher KL, Beck NC, Frank RG, Anderson SK, Walker SE (1990) Psychological screening in rheumatoid arthritis. J Rheumatol 17:1016–1021
44. Donias S, Karastergiou A, Manos N (1991) Standardization of the symptom checklist-90-R rating scale in a Greek population (in Greek with English abstract). Psychiatriki 2:42–48
45. Caine TM, Foulds GA, Hope K (1967) Manual of hostility and direction of hostility questionnaire. University of London Press, London
46. Economou M, Angelopoulos NV (1989) Dysthymic symptoms, hostility and scholastic achievement in a group of high school students. Educ Psychol 9:331–337
47. Angelopoulos NV, Drosos AA, Moutsopoulos HM (2001) Psychiatric symptoms associated with scleroderma. Psychother Psychosom 70:145–150
48. Vagenakis GA, Hyphantis TN, Papageorgiou C, Protonatariou A, Sgourou A, Dimopoulos PA, Mavreas V, Vagenakis AG, Georgopoulos NA (2004) Kallmann's syndrome and schizophrenia. Int J Psychiatry Med 34:379–390
49. Hyphantis TN, Triantafillidis JK, Pappa S, Mantas C, Kaltsouda A, Cherakakis P, Alamanos Y, Manousos ON, Mavreas VG (2005) Defense mechanisms in inflammatory bowel disease. J Gastroenterol 40:24–30
50. Prevoo ML, van't Hof MA, Kuper HH, van Leeuwen MA, van de Putte LB, van Riel PL (1995) Modified disease activity scores that include twenty-eight-joint counts. Development and validation in a prospective longtudinal study of patients with rheumatoid arthritis. Arthritis Rheum 38:44–48
51. Priest RG (1976) The homeless person and the psychiatric services: an Edinburgh survey. Br J Psychiatry 128:128–136
52. Van der Heide A, Jacobs JW, van Albada-Kuipers GA, Kraaimaat FW, Greener R, Bijlsma JW (1994) Physical disability and psychological well being in recent onset rheumatoid arthritis. J Rheumatol 2:28–32
53. Barlow JH, Cullen LA, Rowe IF (1999) Comparison of knowledge and psychological well-being between patients with a short disease duration ($<$ or $=$ 1 year) and patients with more established rheumatoid arthritis ($>$ or $=$ 10 years duration). Patient Educ Couns 38:195–203

54. Moutsopoulos HM, Skopouli FN, Sarras AK, Tsampoulas C, Mavridis AK, Constantopoulos SH, Maddison PG (1985) Anti Ro (SSA) positive rheumatoid arthritis (RA): a clinicoserological group of patients with high incidence of D-penicillamine side effects. Ann Rheum Dis 44:215–219
55. Boki KA, Panayi GS, Vaughan RW, Drosos AA, Moutsopoulos HM, Lanchbury JS (1992) HLA class II seguence polymorphisms and susceptibility to rheumatoid arthritis in Greeks.The HLA-DR beta shared-epitope hypothesis accounts for the disease in only a minority of Greek patients. Arthritis Rheum 35:749–755
56. Benazet JF, Reviron D, Mercier P, Roux H, Roudier J (1995) HLA-DRB1 alleles associated with rheumatoid arthritis in southern France. Absence of extraarticular disease despite expression of the shared epitope. J Rheumatol 22:607–610
57. McFarlane AC, Brooks PM (1988) An analysis of the relationship between psychological morbidity and disease activity in rheumatoid arthritis. J Rheumatol 15:926–931
58. RG, Beck NC, Parker JC, Kashani JH, Elliott TR, Haut AE, Smith E, Atwood C, Brownlee-Duffeck M, Kay DR (1988) Depression in rheumatoid arthritis. J Rheumatol 15:920–925
59. Murphy S, Creed F, Jayson MI (1988) Psychiatric disorder and illness behavior in rheumatoid arthritis. Br J Rheumatol 27:357–363
60. Bond M (1995) The development and properties of the Defense Style Questionnaire. In: Conte HR, Plutchik (eds) Ego defenses. Wiley, New York, 212pp
61. Kernberg O (1967) Borderline personality organization. J Am Psychoanal Assoc 15:641–685